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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,070	01/11/2002	Wayne Karpoff	019417-003710US	2827

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EXAMINER

TAKEGUCHI, KATHY K

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 12/19/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/046,070

Applicant(s)

KARPOFF ET AL.

Examiner

Kathy Takeguchi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6-8, 10, 11, 13 and 15 is/are rejected.
- 7) ☒ Claim(s) 3, 5, 9, 12, 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. Claims 1-15 are presented for examination.
2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware of in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4, 6-8, 10-11, 13, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Tomita (United States Patent 6,233,648).

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As per Claim 1

Tomita teaches a method of dynamically mapping addresses between a virtual disk address and one or more physical block addresses for a storage system in response to a write operation requested by a host system, the method comprising:

- receiving a write request from a host (e.g., Figure 4A: S1), said write request including a virtual memory address and one or more blocks of data (e.g., Figure 4A: S1);
- determining whether memory space (e.g., Figure 2: element 4) in the storage system (e.g., the system = every element depicted in Figure 2) has been allocated for the one or more blocks of data based on the virtual memory address (e.g., Figure 4A: element S7);
- if it is determined that memory space has been allocated, completing the write operation to the allocated memory space (e.g., Figure 4A: S13); and
- if it is determined that no memory space has been allocated (e.g., Figure 4A: S9):
 - automatically allocating memory space in the storage system for the one or more blocks of data (e.g., Figure 4A: S9); and
 - completing the write operation to the allocated memory space (e.g., Figure 4A: S11).

As per Claim 7

Tomita teaches a method of dynamically mapping addresses between a virtual disk address and one or more physical block addresses for a storage system in response to a request from a host system to perform an operation on the storage system, the method comprising:

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- receiving a request from a host to perform an operation on one or more blocks (e.g., Figure 2: element 4) of the storage system (e.g., the system = every element depicted in Figure 2), said request including a virtual memory address (e.g., Figure 4A: S1: “logical address”);
- determining from a mapping table (e.g., Figure 4A: S5, buffer management table) whether memory space in the storage system has been allocated for the virtual memory address (e.g., Figure 4A: S5 and S7);
- if it is determined that memory space has been allocated, completing the operation the allocated memory space (e.g., Figure 4A: S13); and
- if it is determined that memory space has been allocated (e.g., Figure 4A: S9):
 - automatically allocating memory space in the storage system for the virtual address (e.g., Figure 4A: S9); and
 - completing the write operation on the allocated memory space (e.g., Figure 4A: S11).

As per Claim 8:

Tomita further teaches wherein the operation is a read operation, and wherein if it is determined that memory space has been allocated, completing the operation includes retrieving the data from the allocated memory space (e.g., Column 6, lines 19-28).

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As per Claim 10:

Tomita further teaches, wherein the operation is a write operation and wherein the request includes one or more blocks of data to be written to the storage system (e.g., Figure 4A: S3).

As per Claims 4 and 11:

Tomita further teaches, wherein if it is determined that no memory space has been allocated, the method further includes determining the number of blocks of memory space in the storage system to be allocated (e.g., Figure 4B: S15).

As per Claims 2 and 13:

Tomita further teaches, wherein determining includes determining whether mapping table includes a link between the virtual address and one or more physical block addresses of the storage system (e.g., Column 4, line 61 to Column 5, line 14).

As per Claims 6 and 15:

Tomita further teaches a storage system including a plurality of storage devices (e.g., Figure 2).

5. Claims 3, 5, 9, 12, and 14 read over the art of record.

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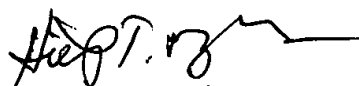
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathy Takeguchi whose telephone number is (703) 305-8115. The examiner can normally be reached on Monday - Friday, 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (703) 308-1756. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

K. T.
K. Takeguchi
Au 2187
December 15, 2003


HIEP T. NGUYEN
PRIMARY EXAMINER